

PATENT COOPERATION TREATY

From the
INTERNATIONAL SEARCHING AUTHORITY

PCT

To:

see form PCT/ISA/220

WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY (PCT Rule 43bis.1)

Date of mailing
(day/month/year) see form PCT/ISA/210 (second sheet)

Applicant's or agent's file reference
see form PCT/ISA/220

FOR FURTHER ACTION
See paragraph 2 below

International application No.
PCT/EP2005/001494

International filing date (day/month/year)
15.02.2005

Priority date (day/month/year)
17.02.2004

International Patent Classification (IPC) or both national classification and IPC
G03F7/00

Applicant
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1. This opinion contains indications relating to the following items:

- ☒ Box No. I Basis of the opinion
- ☐ Box No. II Priority
- ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Box No. IV Lack of unity of invention
- ☒ Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Box No. VI Certain documents cited
- ☒ Box No. VII Certain defects in the international application
- ☒ Box No. VIII Certain observations on the international application

2. FURTHER ACTION

If a demand for international preliminary examination is made, this opinion will usually be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA"). However, this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of three months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

3. For further details, see notes to Form PCT/ISA/220.

Name and mailing address of the ISA:



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**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001494

Box No. I Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.
☐ This opinion has been established on the basis of a translation from the original language into the following language , which is the language of a translation furnished for the purposes of international search (under Rules 12.3 and 23.1(b)).
2. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application and necessary to the claimed invention, this opinion has been established on the basis of:
 - a. type of material:
☐ a sequence listing
☐ table(s) related to the sequence listing
 - b. format of material:
☐ in written format
☐ in computer readable form
 - c. time of filing/furnishing:
☐ contained in the international application as filed.
☐ filed together with the international application in computer readable form.
☐ furnished subsequently to this Authority for the purposes of search.
3. ☐ In addition, in the case that more than one version or copy of a sequence listing and/or table relating thereto has been filed or furnished, the required statements that the information in the subsequent or additional copies is identical to that in the application as filed or does not go beyond the application as filed, as appropriate, were furnished.
4. Additional comments:

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING AUTHORITY**

International application No.
PCT/EP2005/001494

Box No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	3-36,38-44
	No: Claims	1,2,37,45
Inventive step (IS)	Yes: Claims	3-36,38-44
	No: Claims	1,2,37,45
Industrial applicability (IA)	Yes: Claims	1-45
	No: Claims	

2. Citations and explanations

see separate sheet

Box No. VII Certain defects in the international application

The following defects in the form or contents of the international application have been noted:

see separate sheet

Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

see separate sheet

Re Item V

**Reasoned statement with regard to novelty, inventive step or industrial applicability;
citations and explanations supporting such statement**

Reference is made to the following documents:

D1: XP000313315 IBM TECH. DISC. BULL., 01-07-1992, vol.35, No.2, p321-322

D2: US2004013982 A1

D3: XP 004360566, C. Davis, Microelectronic Engineering, 61-62 (2002) p435-440

Claim 1,2

Due to the lack of clarity (see **Re item VIII**), the subject-matter of claims 1 and 2 is not new in the sense of Article 33(2) PCT.

The document D1 discloses (the references in parentheses applying to this document):

A method for providing a thin film on a substrate (silica particles partially embedded in the PTFE matrix) in order to obtain a product, said film being formed by a material (silica), characterized in that it comprises the steps of :

- *dispersing said material in said substrate in order to obtain a mixture; (silica-filled PTFE sheet)*
- *modeling and conditioning said mixture; (plasma treatment)*
- *modeling step comprising the step of forming protrusions and recesses (roughening process)*

Claim 3

The subject matter of claims 3 (see clarity objection on claim 1 in **Re Item VIII**) can be considered as new and inventive according to Article 33 (2) and (3) for the following reasons:

The document D2 which is considered as the closest prior art discloses (the references in parentheses applying to this document):

A method for providing a thin film on a substrate in order to obtain a product (paragraph [0013]), said film being formed by a material (paragraph [0053]), characterized in that it comprises the steps of :

- *dispersing said material ON said substrate in order to obtain a mixture; (paragraph [0035])*
- *modeling said mixture by forming protrusions and recesses; (paragraph [0040])*

From this, the subject-matter of claim 3 differs in that the method of providing a thin film includes a conditioning step allowing the material dispersed in the mixture to emerge on the surface of the mixture with an additional smoothing effect of the surface roughness.

The subject-matter of claim 3 is therefore novel (Article 33(2) PCT).

The technical effect of this difference is to create a spatially controlled distribution of material on the surface of a mono-material substrate (see description page 3 lines 8-10). The problem solved by the invention may be regarded as how to modify the method for creating a material pattern of D2 in order to manufacture patterns having a different chemical nature in thin films directly on a substrate without having to deposit said film. Document D3 discloses in the same context of the application a method for patterning a substrate without having to deposit a thin film (see figure 3(6)). However in D3 the patterns are not of a different chemical nature from the substrate.

Therefore the solution to this problem proposed in claim 3 of the present application is considered as involving an inventive step (Article 33(3) PCT) because none of the available prior art or a combination of the available documents would suggest a manufacturing method for a patterned thin film of a different chemical nature without having to deposit said film.

Dependent claims 4-7

Claims 4-7 are dependent on claim 3 and as such meet the requirements of the PCT with respect to novelty and inventive step.

Dependent claims 8-36

Claims 8-36 have been assessed according to the interpretation defined under Item VIII. Therefore provided they are rewritten in order to be dependent on a new and inventive independent claim they also meet the requirements of the PCT with respect to novelty and inventive step.

Claim 37

Even though the pattern created according to D1 is a random pattern of silica particles, novelty and inventive step could only be acknowledged for a product claim which refers to method claim 3 as it results in an aggregation of particles.

Claim 38

In the light of the objection raised, particularly under section VIII, claim 38 should refer to a method which satisfies the requirements of novelty, inventiveness and clarity.

Product claim 38 discloses an electrode obtained by the method described in the preceding method claims 1-11, where part of the originally dispersed material remains embedded and dispersed within the substrate material (see description page 9 lines 3-4). This is a special characteristic of the product directly derived from the manufacturing method and therefore claim 38 meets the requirements of the PCT with respect to novelty and inventive step (see PCT guidelines section IV article A5.26[1]).

Claims 39, 41, 43

The argumentation on novelty and inventive step developed for independent product claim 38 applies *mutatis mutandis* to independent device claims 39, 41 and 43.

Dependent claims 40, 42, 44

Claims 40, 42 and 44 are respectively dependent on independent claims 38, 41 and 43 and as such also meet the requirements of the PCT with respect to novelty and inventive step.

Claim 45

The lack of clarity notwithstanding (refer to Item VIII), claim 45 is not new and inventive by analogy to the novelty and inventiveness objection made on claim 37.

Re Item VII

Certain defects in the international application

Claim 24

The wording of dependent claim 24 is exactly the same as claim 21.

Re Item VIII

Certain observations on the international application (clarity)

Claim 1

The application does not meet the requirements of Article 6 PCT, because claim 1 is not clear.

The use of the term "*substrate*" is confusing as a substrate normally defines a device having a supporting function. However in the characterising part of claim 1 it is mentioned

that the material forming the film is dispersed in the substrate in order to obtain a mixture which is thus modeled and conditioned. In the context of the present application, it is well known that the dispersion of the material is only possible if the substrate is in a liquid phase which leaves the reader in doubt as to the meaning to which the substrate refers, thereby rendering the definition of the subject-matter of said claim unclear, Article 6 PCT. For the purpose of novelty and inventive step assessment the term "substrate" will be understood as "substrate material".

Moreover it is clear from the description on figure 3 that the following features are essential to the definition of the invention:

- (1) a modeling step of forming protrusions and recesses on a first surface of mixture.
- (2) a conditioning step of causing material to emerge on a second surface comprising the step of smoothing mixture.

Since independent claim 1 refers only to "modeling" and "conditioning" without specifying, it does not contain these essential features and therefore does not meet the requirement following from Article 6 PCT taken in combination with Rule 6.3(b) PCT that any independent claim must contain all the technical features essential to the definition of the invention.

However those essential features are disclosed in dependent claims 2 and 3, therefore, for the purpose of novelty and inventive step assessment the subject matter of claims 1, 2 and 3 will be merged and considered as a single independent claim.

Claim 3

It is not clear what the applicant means by the terms "*second surface*" as it appears from figure 1c that first (10a) and second (1a) surfaces defines the same single surface.

Claim 31

Claim 31 is believed to be dependent on claim 30 instead of claim 26 as written in the application, and has been treated accordingly.

Claim 45

Claim 45 refers to a variety of subjects of different categories. They are all redundant with the claims they refer to. In addition the claim does not satisfy the requirements of Rule 6(2)a PCT because it refers explicitly to the description and the drawings.

**WRITTEN OPINION OF THE
INTERNATIONAL SEARCHING
AUTHORITY (SEPARATE SHEET)**

International application No.

PCT/EP2005/001494